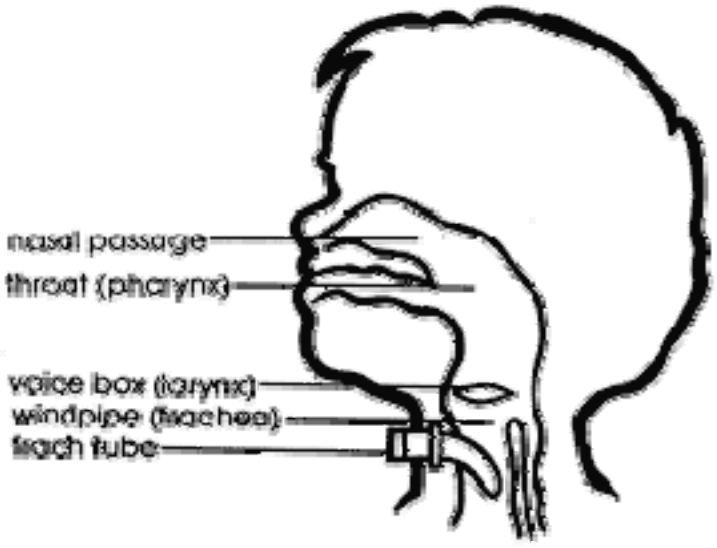
Transporting Medically Fragile or Technology-Assisted Students



By
Dr. Ray Turner

Table of Contents

Chapter One:
Transporting The Medically Fragile or Technology Assisted: An Overview

Children with Special Health Care Needs 12
Categories of Students with Special Health Care Needs 13
Students with Chronic Special Health Conditions 13
Students Whose Conditions Are Infectious 14
Students Who Are Technology Assisted 14
Students with Conditions That Cause Changes In Neurological Functioning 15
Students Who Are Medically Fragile 15
Students with Body and Skin Deformities 17
Students with Multiple Disabilities 18
The High or Low-Functioning Multiply Disabled 18
Students with Other Health Impairments 20
Specially-Equipped School Buses 20
Transportation as a Related Service:
The Individuals with Disabilities Education Act (Public Law 101-476) 21
Section 504 of the Vocational Rehabilitation Act of 1974 22
Student Individualized Evaluation For Special Education and Transportation Services 24
Decision Matrix for Transportation Services for the Medically Complex 25
A Continuum of Special Needs Transportation Services 29
References 31
Web Page Resources 32

Chapter Two:
Special Bus Handling For Specific Medical Conditions

Students Subject To Anaphylactic Reactions To Food 35
Symptoms 35
Food Avoidance at School and On The Special Needs Bus 35
Table 1-Anaphylactic Reactions To Food 37
Students Subject To Anaphylactic Reactions To Insect Bites 39
Insect Avoidance 39
Anaphylactic Treatment Strategies On the Special Needs Bus 39
Anaphylaxis Treatment Forms 40
Table 2-Anaphylactic Reactions To Insect Stings 41

Table of Contents

Special Bus Handling for Students with Severe Asthma 43
- Chronic Asthma 43
- Asthma Symptoms 43
- Asthma Triggers 43
- Reliever Medications 44
- Preventer Medications 44
- The Asthma Management Plan 44
- Table 3-Special Bus Handling For Students with Severe Asthma 45

Special Bus Handling For Students with Infantile Autism 46
- Symptoms 46
- Pervasive Developmental Disorder-Not Otherwise Specified 47
- Asperger Syndrome 47
- Childhood Disintegrative Disorder (CDD) 47
- Hearing Impairment and Childhood Autism 47
- Other Diseases Associated with Childhood Autism 47
- Treatment 48
- Educational/Behavioral Interventions 48
- Table 4-Special Bus Handling for Students with Severe Autism 49

Special Bus Handling for Students with Cerebral Palsy 50
- Symptoms 50
- Cerebral Palsy by Affected Limbs 51
  - Monoplegia 51
  - Diplegia 51
  - Hemiplegia 51
  - Quadriplegia 51
  - Triplegia 51
- Cerebral Palsy By Type of Body Movement Disturbance 52
  - Spasticity 52
  - Table 5-Special Bus Handling for Students with CP-Spasticity 53
  - Athetosis 54
  - Table 6-Special Bus Handling for Students with CP-Athetosis 56
  - Ataxia 55
  - Rigidity 57
  - Tremor 57
  - Dystonia 57
    - Torsion Dystonia 58
    - Spasmodic Torticollis. 58
    - Blepharospasm 58
    - Cranial Dystonia 58
    - Dopa-Responsive Dystonia (DRD) 58
    - Huntington’s Chorea 58

Table of Contents

Table 7-Special Bus Handling for Students with CP-Ataxia 59
Table 8-Special Bus Handling for Students with CP-Dystonia 60
Mixed Cerebral Palsy 61
Friedreich's Ataxia (FRDA) 61
Special Bus Handling for Students with Cystic Fibrosis 63
Treatment 63
Management of Lung Problems 63
Medications To Help Breathing 64
Management of Digestive Problems 64
Table 9-Special Bus Handling for Students with Cystic Fibrosis 65
Special Bus Handling for Students with Congenital Heart Malformation 66
Ventricular Septal Defect (VSD) 66
Congestive Heart Failure (CHF) 67
Blue Baby Syndrome 67
Table 10-Special Bus Handling for Students with Congenital Heart Malformation 68
Special Bus Handling for Students with Diabetes (Diabetes Mellitus) 69
Type 1-Diabetes 69
Type II-Diabetes 69
Symptoms. High and Low Blood Sugars 70
Hypoglycemia (Low Blood Sugar) 70
Hyperglycemia (High Blood Sugar) 70
Table 11-Special Bus Handling for Students with Juvenile Diabetes 71
Special Bus Handling for Students with Encephalitis 72
Symptoms 73
Treatment 73
Table 12-Special Bus Handling for Students with Severe Encephalitis 74
Special Bus Handling for Students with Fetal Alcohol Syndrome (FAS) 75
Symptoms 75
Treatment 75
Table 13-Special Bus Handling for Students with Fetal Alcohol Syndrome . . . 77
Special Bus Handling for Students with Guillain-Barre Syndrome 78
Symptoms 79
Treatment 79
Table 14-Special Bus Handling for Students with Gullain-Barre Syndrome . . . 80
Special Bus Handling for Students with Hemophilia 81
Hemophilia A 81
Hemophilia B 81
Treatment 82
Table 15-Special Bus Handling for Students with Hemophilia 83
Special Bus Handling For Students with Hydrocephaly (The Shunt) 84
Symptoms 84
Treatment 84
Other Problems Associated with Hydrocephalus 85
Table 16-Special Bus Handling for Students with Hydrocephaly ,,,. 86

Transporting Medically Fragile or Technology-Assisted Students

Table of Contents

Special Bus Handling for Students with Irritable Bowel Syndrome (IBS) 87
Symptoms 87
Treatment 87
Table 17-Special Bus Handling for Students with Irritable Bowel Sydrome . . . 88
Special Bus Handling for Students with Juvenile Arthritis
(Osteoarthritis, Scleroderma) 89
Juvenile Rheumatoid Arthritis (JRA) 89
Systemic Onset JRA 89
Polyarticular JRA 89
Pauciarticular JRA 89
Treatment 89
Table 18-Special Bus Handling for Students with Juvenile Arthritis 91
Special Bus Handling for Students with Lennox-Gastaut (LG) Syndrome 92
Symptoms 92
Treatment 92
Table 19-Special Bus Handling for Students with Lennox-Gastaut Syndrome . 93
Special Bus Handling for Students with Lesch-Nyham Syndrome (LNS) 94
Symptoms 94
Treatment 94
Table 20-Special Bus Handling for Students with Lesch-Nyham Syndrome . . . 95
Special Bus Handling for Students with Marfan's Syndrome 95
Symptoms 95
Excessive Height 95
Eye Problems 95
Problems with the Spine 95
Problems with the Breast Bone 95
Heart Problems 97
Table 21-Special Bus Handling for Students with Marfan Syndrome 98
Special Bus Handling for Students with Osteogenesis Imperfecta 99
Type I-Osteogenesis Imperfecta 99
Type II-Osteogenesis Imperfecta 99
Type III-Osteogenesis Imperfecta 100
Type IV-Osteogenesis Imperfecta 100
Treatment. 100
Table 22-Special Bus Handling for Students with Osteogenesis Imperfecta 100
Special Bus Handling for Students with Multiple Sclerosis 102
Symptoms 102
Treatment 103
Table 23-Special Bus Handling for Students with Multiple Sclerosis 104
Special Bus Handling for Students with Muscular Dystrophy 105
Myotonic Dystrophy (DM) 105
Duchenne Muscular Dystrophy (DMD) 106
Becker Muscular Dystrophy (BMD) 106
Limb-Girdle Muscular Dystrophy (LGMD) 107
Facio-Scapula Humeral Dystrophy (FSH) 107

Table of Contents

Congenital Muscular Dystrophy (CMD) 108
Oculopharyngeal Muscular Dystrophy (OPMD) 108
Distal Muscular Dystrophy (DD) 108
Emery-Dreifus Muscular Dystrophy 108
Table 24-Special Bus Handling for Students with Muscular Dystrophy 109
Special Bus Handling for Students with Myasthenia Gravis 110
Symptoms 110
Table 25-Special Bus Handling for Students with Myasthenia Gravis 111
Special Bus Handling for Students with Prader-Willi Syndrome 112
Stage One 112
Stage Two 112
Special Bus Handling for Students with Raynaud's Phenomenon 113
Symptoms 113
Treatment 114
Table 26-Special Bus Handling for Students with Raynaud's Phenomenon . . . 115
Special Bus Handling for Students with Rett Syndrome 116
Symptoms 117
Treatment 118
Table 27-Special Bus Handling for Students with Rett Syndrome 119
Special Bus Handling for Students with Scoliosis 120
Table 28-Special Bus Handling for Students with Scoliosis 121
Special Bus Handling for Students with Spina Bifida 122
Spina Bifida Occulta 122
Meningocele 122
Myelonmeningocele 122
Table 29-Special Bus Handling for Students with Spina Bifida 123
Special Bus Handling for Students with Spinal Muscular Atrophy 124
Symptoms 124
Treatment 124
Special Bus Handling for Students with Traumatic Brain Injury 125
Head Injuries 125
Physical Symptoms 125
Cognitive Symptoms 125
Psychosocial Symptoms 125
Table 30-Special Bus Handling for Students with Traumatic Brain Injury 126
Special Bus Handling for Students with Tuberous Sclerosis 127
Symptoms 127
Treatment 127
Table 31-Special Bus Handling for Students with Tuberous Sclerosis 128
References 129
Web Resources 129

Chapter Three:
Transporting the Technology Assisted

Students Using Oxygen Support On the Special Needs Bus ...134
Nasal Catheters 134
Nasal Prongs 134
Face Masks 135
Trachea Masks 135
Symptoms 135
Home/School Oxygen 135
Oxygen Safety 136
Table 32-Special Bus Handling for Students Using Oxygen Support 137
Students using Portable Ventilators On the Special Needs Bus ...138
Table 33-Special Bus Handling For Students Using Ventilator Support 139
Special Bus Handling For Students with Tracheostomys ...140
When To Suction 140
Types of Tracheostomy Tubes 141
Communication with Student Riders Using a Trach 142
Clothing, Overcoats, Winter Dress on the Bus 142
Avoiding Horseplay on the Bus 142
Trach Tube Suctioning 143
Table 34-Special Bus Handling For Students Using Trach Support 145
Transporting Students Using Nasal Feeding Tubes (Nasogastric Tubes) 146
Table 35-Special Bus Handling For Students
Using Nasal Feeding Tube Support 148
Transporting Students Using Gastronomy Feeding Tubes (G-Tubes) 149
Feeding Protection 149
Table 36-Special Bus Handling For Students
Using Gastronomy Tube Support 151
Transporting Students Requiring Ostomy Care 152
Types of Ostomies-Colostomy 152
Illeostomy 153
Continent Illeostomy 153
Illeoanal Reservoir 154
Ostomies in the Urinary System 154
Table 37-Special Bus Handling For Students Using Ostomy Support 155
Transporting Students Requiring Catheterization 156
Condom Collection Bag 157
Indwelling Catheter 157
Table 38-Special Bus Handling For Students Requiring Catheterization 158
Transporting Students Requiring Dialysis 159
Symptoms 159
Dialysis 159
Hemodialysis 159
Peritoneal Dialysis 160

Kidney (Renal) Transplant 161
Table 39-Special Bus Handling For Students Requiring Dialysis Support 162
Transporting Students Requiring Assistive Technology 163
Table 40-Special Bus Handling For Students
Requiring Assistive Technology 166
Transporting Students Using Scooters 167
Rear Wheel Drive Scooters 167
Front Wheel Drive Scooters 168
Table 40-Special Bus Handling For Students Requiring Scooters 169
Transporting Students Requiring Wheelchair Mobility 170
Powered Wheelchairs 171
Wheelchair Components 171
Wheelchair Frames 171
Wheelchair Upholstery 172
Wheelchair Seating System 172
Wheelchair Brakes 172
Wheelchair Wheels and Tires 172
Wheelchair Footrests 172
Wheelchair Armrests 172
Wheelchair Controls 172
Wheelchair Drive Systems 173
Wheelchair Batteries 173
Special Powered Features 173
Purchasing A Wheelchair 173
Table 41-Special Bus Handling For Students
Requiring Powered Wheelchairs 174
Summary 175
References 176
Web Page Resources 176

Chapter Four: Support Personnel for the Medically Fragile/Technology Assisted

Parents On the Special Needs Bus 178
Personal or Home Care Attendants 178
Respite Care Providers 180
Health Care Attendants 181
Physical Therapists and the Special Needs Driver Team 182
Occupational Therapists and the Special Needs Driver Team 185
Respiratory Therapists and the Special Needs Driver Team 187
Private Duty Nurses On the Special Needs Bus 188
School Nurses On the Special Needs Bus 190
Social Work Services (Case Management) For the Medically Fragile 191

Wheelchair Repair and Maintenance Technicians 193
Rehabilitation Technologists 195
Assistive Technologists 196
Other Medical Specialists Who Are Part of the Driver Support Team 197
Summary 198
References 198
Web Page Resources. 198

Chapter Five: Driver Team Training For Students Requiring Extreme Special Handling

Medically Fragile Student Privacy vs. The Driver Team's Need to Know 200
Loading and Unloading the Medically Fragile On the Special Needs Bus 202
Loading Procedures--Up To The Home Door 202
Loading Procedures--In-Home Services 202
Lift Operation For the Medically Fragile 203
Wheelchair Seating Assignment 204
Nursing or Attendant Seating Arrangements 204
Wheelchair Tiedown 204
Prolonged Special Needs Bus Loading Times 205
Bus Routing for the Medically Fragile 205
Modified Routes and Bus Schedules 206
Emergency Route Procedures 206
Alternative Bus Routes For Emergency Service 206
Air Conditioning (Cooling, Heating, Humidity Control) 207
Equipment Backup On The Bus 207
Spare Lift Buses 208
Support Personnel Backup On The Bus 208
Backup or Emergency Bus Communication Systems 208
School Loading Zone Procedures For The Medically Fragile 208
The Parent, Regular and Special Needs Bus Mix at the School Loading Zone 209
Travel Distances At School Loading Zone For the Medically Fragile 209
Transfer of Custody Between Driver Team and Special Education Building Personnel 210
Inclement Weather Planning At the School Loading Zone 210
Avoiding Interactions with Other Students At the School Loading Zone 210
Supplemental Runs For The Medically Fragile 211
Supplemental Route Driver Teams 211
Supplemental Route Bus Equipment 211
Supplemental Route Procedures 212
Home Drop Off Procedures on the Special Needs Bus 212
Changing the PM Home Drop Off Service 212
Minimizing the Student Daily Log or Notebook Exchange 212

Logging Behavior or Health Incidents in the Notebook ..213
Transporting Empty Wheelchairs and Associated Student Technology ... 213
Transporting Essential Medications on the Special Needs Bus .. 214
Transporting Student Medication 214
Administering Medications to Students on the Special Needs Bus ... 214
Documentation of Special Needs Bus Services 214
Special Needs Transportation Eligibility for the Medically Fragile 214
The Transition Plan--From Hospital to Home 215
The Transition Plan--From Home to School 215
The Special Needs Transportation Request Form 216
The Special Needs Student Transportation Folder 216
Emergency Student Documentation on the Bus .. 217
Bus Behavior Management for the Medically Fragile/Technology Assisted 217
Fragile Student Special Handling on the Special Needs Bus .. 217
Special Needs Student Incident Report Documentation 218
Controlling Student Self-Abuse 218
Individual Student Emergency Plans 219
Emergency Plan Development 219
Technology Power Failure Emergency Plan .. 219
Student Physiological Emergency Plan 219
Emergency Plans For Natural Disasters and the Technology Assisted 220
Emergency Communications for Specially-Equipped School Buses 220
Emergency School Bus Routes 220
Emergency Route Plans 221
Medical Emergencies on the Special Needs Bus. 221
Medically Fragile Emergency Student Evacuation 224
Emergency Room Preparation For the Driver Team 222
Consent for Medical Treatment .. 224
Do Not Resuscitate (DNR) Orders
Death Education
Special Handling on Field Trips
Summary
References
Web Page Resources

Chapter Six:
Related Medical and Health Issues On The Special Needs Bus

Universal Precautions
Handling Body Fluids
OSHA Guidelines/Governmental Relations
Communicable Diseases
Disease Management
Protective Equipment
Health Support Staff

Table of Contents

Summary . . . . . .
References . . . . . .
Web Page Resources . . . . . .

Chapter Seven: Transporting The Medically Complex: A Self-Assessment Guide

Pre-Inspection Trip Checklist . . . . . .
Universal Precautions Checklist . . . . . .
ADAAG Accessibility Checklist . . . . . .
Subject and Author Index . . . . . .